

THE CHALLENGE OF COMMUNITY CARDIOVASCULAR DISEASE: THE DAN RIVER REGION CARDIOVASCULAR HEALTH INITIATIVE PROGRAM—DRCHIP

Michael A. Moore, MD;
Terri Motley, RN, BSN;
Kathryn Plumb, RN, BSN, MEd

INTRODUCTION

The Dan River Region (DRR) is located in southern Virginia, with the city of Danville in the geographical center. The DRR includes Pittsylvania County, Va., the northern half of Caswell County, N.C., a southeastern portion of Henry County, Va., and the western portion of Halifax County, Va. The area's economy is predominantly agricultural, with some manufacturing and healthcare services also adding to the economic health of the area.

One hospital, the Danville Regional Medical Center (DRMC), a tertiary-level medical center, serves the DRR with 350 beds and approximately 150 physicians, including 25 primary care/internal medicine physicians and 5 cardiologists. Approximately 10% of the DRR population utilizes managed care. All physicians are in private practices with many in solo or 2-person groups.

The DRR has a population of >150,000, comprised of 64% Caucasians, 35% African Americans, .05% Hispanic Americans, .1% Native Americans, and .04% Asian Americans. The population of the DRR ranks within the top 15% of US counties for annual coronary heart disease mortality. It also has twice the annual state and national rate for stroke mortality and new dialysis starts for end stage renal disease. Forty percent of the population has an income below the 200% poverty level as defined by the US Census. Low educational levels and low per capita income, compared to average state levels, make the DRR population at increased risk for poor health outcomes. This large DRR population is unequally distributed throughout the region and has an un-

equal distribution of healthcare resources. Many reside in rural settings, with the nearest health care located 30 miles away in Danville, Va. Pittsylvania County, Va. is within one of the federally designated Health Professional Shortage areas and Medically Underserved areas.

THE DAN RIVER REGION CARDIOVASCULAR INITIATIVE PROGRAM: DRCHIP

In response to the high rates of cardiovascular (CV) mortality locally, in 1999, 4 healthcare professionals organized the Dan River Region Cardiovascular Health Initiative Program (DRchip), a non-profit voluntary health corporation. The founders were 2 senior public health nurses, a health care educator, and a physician. The physician was the director of Medical Education for DRMC and a hypertension specialist, as certified by the American Society of Hypertension. The founders were aware of the high CV mortality and morbidity in the DRR and the existing efforts of several voluntary health groups, social groups, and healthcare professionals who were already working to improve the CV health of the region. However, there was no coordination among these groups, no formal ways to identify and to meet unrecognized community CV needs, and no methods to measure outcomes. DRchip sought to bring coordination to expand the existing community efforts. Its mission was to reduce the mortality, morbidity, and prevalence of cardiovascular disease in the DRR population.

(*Ethn Dis.* 2002;12[suppl3]:S3-92-S3-94)

Key Words: Cardiovascular Disease Prevention; Health Initiative; Community Program

From the Dan River Region Cardiovascular Health Initiative Program, Danville, Virginia.

Address correspondence and reprint requests to Michael A. Moore, MD; Dan River Region Cardiovascular Health Initiative Program; 326 Taylor Drive; Danville, VA 24541.

A DRchip coordinating committee was organized and included representatives from those groups already involved in community CV programs and from groups that were believed to offer potential additional help, such as mass media, faith organizations, businesses, and other community programs. Initial funding for DRchip came from the Dan River Health Foundation, a division of the Dan River Health Systems, Inc. and in-kind support from DRMC and the Danville/Pittsylvania Health Department. DRchip sought and was subsequently designated as a Cardiovascular Center of Excellence[™] by the Consortium for Southeastern Hypertension Control (COSEHC; www.cosehc.org). This allowed DRchip to participate in the COSEHC internet-based CV database.

DRchip utilizes a community-wide consensus-building approach for CV disease prevention and treatment within the DRR through a network of partners who bring services, fiscal support, and volunteers committed to serving the community. Community improvement avenues targeted in the DRchip community-based approach include: local middle schools (CV education/screening and physical activity promotion); community members (CV education and screening); and, a network of businesses and faith-based agencies. Additional approaches include: case management of clients with CV disease; specialty clinics for hypertension and hyperlipidemia allowing difficult-to-manage patients to remain in the DRR; and a CME program for physicians that analyzes learning needs of the physician and promotes best practice standards for CV disease.

DRchip drew from 3 models or strategies of healthcare improvement: 1) Continuous Quality Improvement (CCQI), applied through a consensus-building community coordination committee; 2) Community Cardiovascular Centers of Excellence; and 3) Case Management. The CCQI applies a continuous quality improvement model to

the coordination of community resources to change community health outcomes. The National High Blood Pressure Education Program of the NHLBI validated this community consensus-building approach for CV disease management.¹ The model was initially utilized in selected cities and found to be successful in identifying hypertensive individuals and in reducing coronary artery and stroke mortality. Subsequently, the NHLBI provided grants to various states to implement this approach, thus confirming the success of this approach.

CCQI brings together community groups with a stated interest or a potential ability to affect CV disease with specific measurable goals and defined strategies to reach the goals. Periodic review is made of progress to the goals, and the strategies are modified based on feedback gained during the review. At the same time, goals are revised to maintain a steady improvement in the basic problem being addressed.

The idea of developing a medical practice, an academic medical center, or a community health group into a comprehensive integrated center to improve CV health was developed by COSEHC, which recognized the high prevalence of CV risk factors and disease in the Southeast.² It was believed that local communities must develop programs to address their local community CV problems. A COSEHC Center promotes community CV screening and education, comprehensive CV care, and education for healthcare professionals. These centers advocate the use of evidenced-based research, best clinical practices, and the serial measurement of clinical outcomes from these practices. DRchip is one of 21 COSEHC Centers of Excellence[™].

Disease Management (DM) strives to utilize best practices as algorithms to provide individual patient support to enhance compliance with a recommended treatment. DM programs usually incorporate continuous quality improvement within their protocols to

evaluate the effectiveness of the interventions. In the case of DRchip, DM is applied to the community through individual CV disease interventions. The case managers who deliver DM typically measure broader outcomes of community CV improvement programs.

The DRchip program believes the following principles will be critical to success:

1. The community must improve itself; external forces cannot make lasting improvements.
2. Community resources that individually have good value must be used.
3. The community must own the improvement process to ensure long-term success.
4. Educational interventions must be based on sound scientific information.
5. CV risk factor identification and management (secondary prevention) are important, but long-term education of the community, and particularly children, in healthy lifestyles and preventive CV health care (primary prevention) will be critical to long-term success.
6. A community-wide coordinating committee is required to provide cooperative planning, measurement of improvement, and identification of community needs and resources to sustain the program.

DRchip activities affect community members of all ages and ethnicity throughout the DRR. As the cadre of community partners widen with concerned citizens and committed healthcare providers who want the best for those they serve, the incidence of CVD morbidity and mortality should decrease. We anticipate that the DRR region will adopt healthier CV lifestyles and ultimately will eliminate health disparities and improve the quality of life and longevity within the DRR.

Initially, DRchip utilized an annually renewable 3-year action plan featuring the following 4 activities: 1) com-

COMMUNITY CARDIOVASCULAR DISEASE PROGRAMMING - Moore

munity CV risk factor screening with referral to primary care; 2) enhanced public CV education through the DRMC communications department; 3) a unique public middle school program in which public health nurses teach CV health; and 4) continuing medical education (CME) for healthcare professionals.

DRCHIP: AN NHLBI EDUCATION DISSEMINATION AND UTILIZATION CENTER

In 2001, DRchip was selected as one of the first 6 NHLBI Education Dissemination and Utilization Centers (EDUC). This allowed expansion of the initial DRchip community strategies and added the capability of measuring community outcomes using case managers who serially followed patients with CV disease. As an EDUC, the DRchip program was expanded with these components: 1) a hospital-based congestive heart failure disease management program to increase public CV education with mass media support; 2) the addition of another public middle school to the school initiative; 3) prospective outcome measures over 3 years as nurse CV case managers would be able to implement and maintain outpatient preventive lifestyle changes in patients with CV risk factors while assisting with treatment of obesity, hypertension, hyperlipidemia, and post-hospital care for CHF patients. As an EDUC, the CME initiative for healthcare professionals was restructured into a prospective outcome-based program using the case managers to assist in measuring clinical outcomes.

DRchip, providing community CV risk factor screening/referral and public/healthcare professional education relates to the following *Healthy People 2010* objectives: 12.1—Reduce coronary heart disease; 12.2—Increase the proportion of adults age 20 years and older

who are aware of the early warning symptoms and signs of heart attack and the importance of accessing the rapid emergency care by calling 911; 12.6—Reduce hospitalizations of older adults with heart failure as the principal diagnosis; and 12.10—Increase the proportion of adults with high blood pressure whose values are under control.

PRELIMINARY COMMUNITY OUTCOMES OF DRCHIP

During the first 3 years, the DRchip programming has identified several elements useful for future programming:

1. The DRR has a high prevalence of treatable CV risk factors.
2. CV risk factors present at an early age in the DRR.
3. The DRR populace is responsive to interventions.
 - a. The community is interested in partnering to improve health.
 - b. The community will buy into CV prevention.
4. Additional community CV needs have been identified.
 - a. Additional CV screening is needed with follow up care.
 - b. There is an increasing demand on DRchip for CV programs.

In summary, as the DRchip program enters its fourth year, more community CV needs have been identified. However, the program has found many partners within businesses and faith-based groups that lead us to believe even more can be accomplished through a coordinated community CV health program.

REFERENCES

1. Lenfant C, Roccella E. Trends in hypertension control in the United States. *Chest*. 1964;86:459-462.
2. Hall WD, Ferrario CM, Moore MA, et al. Hypertension-related morbidity and mortality in the southeastern United States. *Am J Med Sci*. 1997;313:195-209.
3. Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure. The sixth report of the Joint

National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure. *Arch Intern Med* 1997;157:2413-2446.